Using the Scientific Method to Design a Better Green Roof

In the Bernheim Forest Videos on the green roof and applying the scientific method, Claude Stephens explained how the green roof on the visitor’s center worked to improve water quality and how by creating experimental roof grids Bernheim was exploring how to make their green roof even better by figuring out which plants would grow best and in what growing medium.

**Purpose:** The purpose of this two part experiment is to look at two variables being tested for at Bernheim. First we will look at the type of growing media used. Secondly we will look at the type of plants used.

Before starting the experiment, lets watch the two video clips mentioned and then answer the following guiding questions:

1. How does the green roof slow down and filter rainwater that falls on it?
2. How would you describe the climate of a green roof as far as what conditions a plant will face that is growing on it?

**Materials**: needed for experiment:

Sunny Window or grow light stand

Aluminum or plastic trays

Clear plastic cups

Potting soil

Sand

Pea gravel

Heavy clay soil

Plastic wrap

Rubber bands

**Plants needed:**

Bean or radish seeds

Jade plant starts

(Note: The process of creating jade plant starts is an easy but long process so the teacher should do this a few weeks earlier in prep. for this experiment. Actually starting these plants can be another great classroom activity to study plant propagation. )

To make the starts, break some of the succulent leaves from a mature jade plant. Lay them in a dry place for a week. Then stick them stem end down into some damp sand. After about two weeks, tiny plantlets should form at its base as well as some tiny white roots.